

AUTHORIZATION TO DISCHARGE UNDER THE  
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Clean Water Act, as amended, (33 U.S.C. 1251 *et seq.*, the "Act"),

Guam Waterworks Authority  
P. O. Box 3010  
Agana, GU 96910

is authorized to discharge treated domestic wastewater from the Umatac-Merizo Sewage Treatment Plant (the Waste Stabilization Pond Treatment System and associated constructed wetland ponds of the Wetlands Treatment System) through Discharge Serial No. 001,

Latitude: 13° 17' 02" N  
Longitude: 144° 40' 00" E

to Category S-3 (Low) receiving waters named Toguan River, tributary to Toguan Bay of the Philippine Sea, in accordance with effluent limitations, monitoring requirements, and other conditions set forth herein, and in the attached USEPA Region 9 *Standard Federal NPDES Permit Conditions*, dated May 10, 1990.

This permit shall become effective on \_\_\_\_\_, 2000.

This permit and the authorization to discharge shall expire at midnight, \_\_\_\_\_, 2005.

Signed this \_\_\_\_\_ day of \_\_\_\_\_, 2000.

For the Regional Administrator

\_\_\_\_\_  
Alexis Strauss, Director  
Water Division

## TABLE OF CONTENTS

PART A.	Effluent Limitations and Monitoring Requirements
PART B.	Definitions
PART C.	Sludge/Biosolids Limitations and Monitoring Requirements
PART D.	Constructed Wetlands Wastewater Treatment System Operations and Maintenance Plan
PART E.	Receiving Water Monitoring Requirements
PART F.	General Monitoring and Reporting Requirements
PART G.	Attachments
1.	Location Map
2.	Process Diagram
3.	Receiving Water Monitoring Stations
4.	Standard NPDES Permit Conditions

**A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**

1. Effluent limitations and monitoring requirements are based upon an average daily flow of 0.605 ft<sup>3</sup>/sec (0.391 MGD). The permittee is authorized to discharge from Discharge Serial No. 001. Discharge Serial No. 001 is located at the Wetlands Treatment System discharge point to Toguan River.

- a. Such discharge shall be limited and monitored by the permittee as specified below:

Effluent Characteristic	Maximum Discharge Limitations Unless Otherwise Noted						Monitoring Requirements	
	Average Monthly (lbs/day)	Average Weekly (lbs/day)	Maximum Daily (lbs/day)	Average Monthly	Average Weekly	Maximum Daily	Monitoring Frequency	Sample Type
Flow (ft³/sec)	n/a <sup>1</sup>	n/a	n/a	<sup>2</sup>	<sup>2</sup>	<sup>2</sup>	Continuous	Continuous
Biochemical Oxygen Demand (5-day) <sup>3</sup>	98	150	n/a	30 mg/L	45 mg/L	n/a	Weekly	24 hr Composite
	Both the influent and the effluent shall be monitored. The arithmetic mean of the BOD <sub>5</sub> values, by concentration, for effluent samples collected over a calendar month shall not exceed 15 percent of the arithmetic mean, by concentration, for influent samples collected at approximately the same times during the same period.							

<sup>1</sup> n/a = not applicable.

<sup>2</sup> Monitoring and reporting required. No limitation set at this time. For flow, both the influent and the effluent shall be monitored.

<sup>3</sup> Discharge limitation is based on federal secondary treatment standards in accordance with 40 CFR 133.102(c) and/or *Revised Guam Water Quality Standards* (1992). Mass emission rate limitation is calculated using an average daily flow of 0.605 ft<sup>3</sup>/sec (0.391 MGD).

Effluent Characteristic	Maximum Discharge Limitations Unless Otherwise Noted						Monitoring Requirements	
	Average Monthly (lbs/day)	Average Weekly (lbs/day)	Maximum Daily (lbs/day)	Average Monthly	Average Weekly	Maximum Daily	Monitoring Frequency	Sample Type
Total Suspended Solids <sup>3</sup>	98	130	n/a	30 mg/L	40 mg/L	n/a	Weekly	24 hr Composite
	Both the influent and the effluent shall be monitored. The arithmetic mean of the TSS values, by concentration, for effluent samples collected over a calendar month shall not exceed 15 percent of the arithmetic mean, by concentration, for influent samples collected at approximately the same times during the same period.							
<i>E. coli</i> <sup>4</sup>	n/a			126 CFU/ 100 mL	n/a	406 CFU/ 100 mL	Weekly	Discrete
Enterococci	n/a			CFU/ 100 mL	n/a	n/a	Weekly	Discrete
Total Chlorine Residual <sup>5</sup>	0.020	n/a	0.039	6.1 ug/L	n/a	12 ug/L	Weekly	Discrete

<sup>4</sup> Discharge limitation is based on applicable draft *Revised Guam Water Quality Standards* and 40 CFR 122.44(d). To determine compliance with the “average monthly discharge limitation” a minimum of four samples must be collected at approximately equal intervals. Samples shall be taken at the location specified in Part A.6.c of this permit.

<sup>5</sup> Upon initiation and throughout the duration of effluent chlorination, the permittee shall monitor total chlorine residual. Samples shall be taken at the location specified in Part A.6.c of this permit. Concentration limitation is based on best professional judgement, USEPA water quality criteria, and 40 CFR 122.44(d), and is calculated in accordance with *Technical Support Document for Water Quality-based Toxics Control* (EPA/505/2-90-001, March 1991). Mass emission rate limitation is calculated using an average daily design flow of 0.605 ft<sup>3</sup>/sec (0.391 MGD). Contact time following chlorination and prior to effluent discharge shall not be less than 15 minutes.

Effluent Characteristic	Maximum Discharge Limitations Unless Otherwise Noted						Monitoring Requirements	
	Average Monthly (lbs/day)	Average Weekly (lbs/day)	Maximum Daily (lbs/day)	Average Monthly	Average Weekly	Maximum Daily	Monitoring Frequency	Sample Type
pH <sup>6, 7</sup>	Not less than 6.5 nor greater than 8.5 standard units.						Weekly	Discrete
Orthophosphate (PO <sub>4</sub> -P) <sup>8</sup>	<sup>2</sup>	n/a	0.33	<sup>2</sup>	n/a	0.10 mg/L	Weekly	24 hr Composite
Nitrate-Nitrogen (NO <sub>3</sub> -N) <sup>8</sup>	<sup>2</sup>	n/a	1.6	<sup>2</sup>	n/a	0.50 mg/L	Weekly	24 hr Composite
Total Kjeldahl Nitrogen (mg/L TKN)	<sup>2</sup>	n/a	<sup>2</sup>	<sup>2</sup>	n/a	<sup>2</sup>	Weekly	24 hr Composite
Ammonia Nitrogen (mg/L NH <sub>3</sub> +NH <sub>4</sub> -N)	<sup>2</sup>	n/a	<sup>2</sup>	<sup>2</sup>	n/a	<sup>2</sup>	Weekly	24 hr Composite

<sup>6</sup> Discharge limitation is based on applicable *Revised Guam Water Quality Standards* and 40 CFR 122.44(d).

<sup>7</sup> pH, dissolved oxygen, and temperature shall be monitored concurrently. To account for diurnal fluctuations, monitoring shall be conducted within 3 hours after sunrise and within 3 hours before sunset.

<sup>8</sup> Concentration limitation is based on applicable *Revised Guam Water Quality Standards* and 40 CFR 122.44(d). Mass emission rate limitation is calculated using an average daily design flow of 0.605 ft<sup>3</sup>/sec (0.391 MGD).

Effluent Characteristic	Maximum Discharge Limitations Unless Otherwise Noted						Monitoring Requirements	
	Average Monthly (lbs/day)	Average Weekly (lbs/day)	Maximum Daily (lbs/day)	Average Monthly	Average Weekly	Maximum Daily	Monitoring Frequency	Sample Type
Dissolved Oxygen (mg/L) <sup>7</sup>	<sup>2</sup>	n/a	<sup>2</sup>	<sup>2</sup>	n/a	<sup>2</sup>	Weekly	Discrete
Turbidity	n/a	n/a	n/a	n/a	n/a	1.0 NTU	Weekly	Discrete
Temperature (°C) <sup>7</sup>	<sup>2</sup>	n/a	<sup>2</sup>	<sup>2</sup>	n/a	<sup>2</sup>	Weekly	Discrete
Heavy Metals (mg/L or ug/L) <sup>9</sup>	<sup>2</sup>	n/a	<sup>2</sup>	<sup>2</sup>	n/a	<sup>2</sup>	Annually	24 hr Composite
Hardness (mg/L CaCO <sub>3</sub> ) <sup>10</sup>	<sup>2</sup>	n/a	<sup>2</sup>	<sup>2</sup>	n/a	<sup>2</sup>	Annually	24 hr Composite
Pesticides (mg/L or ug/L) <sup>9</sup>	<sup>2</sup>	n/a	<sup>2</sup>	<sup>2</sup>	n/a	<sup>2</sup>	Annually	24 hr Composite
Oil and grease (mg/L)	<sup>2</sup>	n/a	<sup>2</sup>	<sup>2</sup>	n/a	<sup>2</sup>	Annually	Discrete

<sup>9</sup> *Heavy metals* mean arsenic, cadmium, chromium III, chromium IV, copper, lead, mercury, nickel, lead, silver, and zinc. Samples shall be analyzed for both total recoverable and dissolved metal. For the listing of all pesticides (organochlorines, organophosphates, carbamates, herbicides, fungicides, defoliants, and botanicals) see USEPA Water Quality Criteria *Blue Book*.

<sup>10</sup> Hardness is monitored because water quality criteria for some heavy metals are hardness dependent.

Effluent Characteristic	Maximum Discharge Limitations Unless Otherwise Noted						Monitoring Requirements	
	Average Monthly (lbs/day)	Average Weekly (lbs/day)	Maximum Daily (lbs/day)	Median Monthly	Average Weekly	Maximum Daily	Monitoring Frequency	Sample Type
Whole Effluent Toxicity (TUC) <sup>11</sup>	n/a			<sup>2</sup>	n/a	<sup>2</sup>	Annually	24 hr Composite

<sup>11</sup>

See Part A.5 of this permit for explanation of requirements.

2. The discharge shall be free from substances which:
  - a. Cause visible floating materials, debris, oils, grease, scum, foam, or other floating matter which degrades water quality or use;
  - b. Produce visible turbidity, settle to form deposits or otherwise adversely affect aquatic life;
  - c. Produce objectionable color, odor, or taste, directly or by chemical or biological action;
  - d. Injure or are toxic or harmful to humans, animals, plants or aquatic life; and
  - e. Induce the growth of undesirable aquatic life.
3. The discharge shall not cause:
  - a. The pH in the receiving waters to vary more than 0.5 units from the ambient pH, except due to natural causes.
  - b. The concentration of dissolved oxygen in the receiving waters to be less than 75% saturation.
  - c. The turbidity in the receiving waters to exceed 1.0 NTU over the ambient condition, except when due to natural conditions.
  - d. The temperature of the receiving waters to be changed by more than 1.0 °C from the ambient condition.
4. Discharge Prohibitions
  - a. The discharge of any pollutant in toxic amounts, including substances which may accumulate to toxic amounts during the expected life of organisms in the receiving water, which are lethal to, or which produce deleterious genetic, physiological, or behavioral effects in organisms is strictly prohibited.
  - b. The discharge of any radioactive wastes and contaminated radioactive materials from research facilities is strictly prohibited.



## 5. Whole Effluent Toxicity Monitoring Requirements

The permittee shall conduct annual toxicity tests on composite effluent samples <sup>12</sup>.

### a. Test Species and Methods

The permittee shall conduct toxicity tests with the water flea, *Ceriodaphnia dubia*. The chronic toxicity of the effluent shall be estimated as specified in *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms* (EPA-600-4-91-002, July 1994).

### b. Definition of Toxicity

Chronic toxicity measures a sublethal effect (e.g., reduced growth) to experimental test organisms exposed to an effluent compared to that of control organisms. The no observed effect concentration (NOEC) is the highest effluent concentration to which organisms are exposed in a chronic test that causes no observable adverse effect on the test organisms (e.g., the highest concentration of toxicant to which the values for the observed responses are not statistically significantly different from the controls). Test results shall be reported in TUC, where  $TUC = 100/NOEC$ .

For this discharge, chronic toxicity for *Ceriodaphnia dubia* is defined by an exceedance of a median monthly chronic toxicity discharge value of 1.0 TUC or a maximum daily chronic toxicity discharge value of 2.0 TUC.

### c. Quality Assurance

- (1) A series of five dilutions (*i.e.*, 12.5, 25, 50, 75, and 100 percent effluent) and a control shall be tested.
- (2) Control and dilution water should be lab water, as described in the test methods manual. If the dilution water used is different from the culture water, a second control using culture water shall also be tested.
- (3) If organisms are not cultured in-house, concurrent testing with reference toxicants shall be conducted. Where organisms are cultured in-house, monthly reference toxicant testing is sufficient.

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<sup>12</sup>

The permittee shall attempt to ensure a total holding time from collection of the last portion of the composite sample until arrival at the laboratory of not more than 36 hours. Should longer than a 36-hour holding time be anticipated, the permittee shall petition USEPA Region 9 (CMD-5) for an extension of the holding time (see Section 8.5.4, EPA-600-4-91-002, July 1994). The extended holding time shall not exceed 72 hours.

- (4) Reference toxicant tests shall be conducted using the same test conditions as effluent toxicity tests (*i.e.*, same test duration, *etc.*).
- (5) If either the reference toxicant tests or the effluent tests do not meet all test acceptability criteria as specified in the test methods manual, then the permittee must re-sample and re-test within approximately 14 days.
- (6) When effluent monitoring frequencies for whole effluent toxicity and priority toxic pollutants are concurrent, then chemical analyses for priority toxic pollutants shall be performed on a split of the sample collected for whole effluent toxicity testing.

d. Preparation of Initial Investigation Toxicity Reduction Evaluation (TRE) Workplan

The permittee shall submit to USEPA Region 9 an initial investigation toxicity reduction evaluation (TRE) workplan [approximately 1-2 pages] within 90 days of the effective date of this permit. This workplan shall describe steps which the permittee intends to follow in the event that toxicity (as defined) is detected, and should include at minimum:

- (1) A description of the investigation and evaluation techniques that would be used to identify potential causes/sources of toxicity, effluent variability, treatment system efficiency;
- (2) A description of the facility's method of maximizing in-house treatment efficiency, good housekeeping practices, and a list of all chemicals used in operation of the facility;
- (3) If a toxicity identification evaluation (TIE) is necessary, who (*e.g.*, contract laboratory, *etc.*) will conduct the TIE.

e. Additional (Accelerated) Toxicity Testing

- (1) If toxicity (as defined) is detected, then the permittee shall conduct three additional tests, one approximately every 14 days, over a six week period. Effluent sampling for the first test of the three additional tests shall commence within approximately 24 hours of receipt of test results exceeding a median monthly chronic toxicity discharge value of 1.0 TUC or a maximum daily chronic toxicity discharge value of 2.0 TUC.
- (2) However, *if implementation of the initial investigation TRE workplan indicates the source of toxicity (e.g., a temporary plant upset, etc.)*, then the permittee shall conduct only the first test of the three additional tests

required above. If toxicity (as defined) is not detected in this first test, the permittee may return to the normal sampling frequency required in Part A.1.a of this permit. If toxicity (as defined) is detected in this first test, then Part A.5.f of this permit shall apply.

- (3) If toxicity (as defined) is not detected in any of the three additional tests required above, then the permittee may return to the normal sampling frequency required in Part A.1.a of this permit.

f. Toxicity Reduction Evaluation/Toxicity Identification Evaluation (TRE/TIE)

- (1) If toxicity (as defined) is detected in any of the three additional tests, then, based on an evaluation of the test results and additional available information, USEPA Region 9 may determine that the permittee shall initiate a TRE, in accordance with the permittee's initial investigation TRE workplan and *Toxicity Reduction Evaluation Protocol for Municipal Wastewater Treatment Plants* (EPA/600/2-88/062, 1989) and *Toxicity Reduction Evaluation Guidance for Municipal Wastewater Treatment Plants* (EPA 833-B-99-002). Moreover, the permittee shall develop a detailed TRE workplan which includes:

- (a) Further actions to investigate/identify the cause(s) of toxicity;
- (b) Actions the permittee has taken/will take to mitigate the impact of the discharge, to correct the noncompliance, and to prevent the recurrence of toxicity;
- (c) A schedule under which these actions will be implemented;

and shall submit this workplan to USEPA Region 9 for approval.

- (2) As part of this TRE process, the permittee may initiate a TIE using the test methods manuals, EPA/600/6-91/005F (Phase I), EPA/600/R-92/080 (Phase II), and EPA/600/R-92/081 (Phase III), to identify the cause(s) of toxicity.
- (3) If a TRE/TIE is initiated prior to completion of the accelerated testing schedule required by Part A.5.e of this permit, then the accelerated testing schedule may be terminated, or used as necessary in performing the TRE/TIE.

g. Reporting

- (1) The permittee shall submit a full report of toxicity test results, including any toxicity testing required by Parts A.5.e and A.5.f of this permit, with the DMR for the month in which the toxicity tests are conducted. A full report shall consist of: (1) toxicity test results (*i.e.*, TUC, *etc.*), and (2) dates of sample collection and initiation of each toxicity test. Toxicity test results shall be reported according to the test methods manual chapter on Report Preparation.

If the initial investigation TRE workplan is used to determine that additional (accelerated) toxicity testing is unnecessary, these results shall be submitted with the DMR for the month in which investigations conducted under the TRE workplan occurred.

- (2) Within 14 days of receipt of test results exceeding a chronic toxicity discharge value, the permittee shall provide written notification to USEPA Region 9 of:
  - (a) Findings of the TRE or other investigation to identify the cause(s) of toxicity;
  - (b) Actions the permittee has taken/will take, to mitigate the impact of the discharge and to prevent the recurrence of toxicity;
  - (c) When corrective actions, including a TRE, have not been *completed*, a schedule under which corrective actions will be implemented; or
  - (d) The reason for not taking corrective action, if no action has been taken.

h. Toxicity Reopener

This permit may be modified in accordance with the requirements set forth at 40 CFR 122 and 124, to include appropriate conditions or limitations to address demonstrated effluent toxicity based on newly available information, or to implement any USEPA Region 9-approved new Territory water quality standards applicable to effluent toxicity.

6. Samples taken in compliance with the monitoring requirements specified in Part A.1.a of this permit shall be taken at the following locations:
  - a. Influent samples shall be taken after the last addition to the collection system and prior to any in-plant return flows and the first treatment process, where representative samples of the influent can be obtained.
  - b. Effluent samples shall be taken after any in-plant return flows and the last treatment process and prior to mixing with the receiving waters, where representative samples of the effluent discharged to Toguan River can be obtained. The location for effluent samples for *fecal coliform* and *total residual chlorine* is specified in Part A.6.c of this permit.
  - c. Effluent samples for *fecal coliform* and *total residual chlorine* shall be taken after the Waste Stabilization Pond Treatment System and chlorination/dechlorination and prior to the Wetlands Treatment System, where representative samples of the effluent discharged to the Wetlands Treatment System can be obtained.

## **B. DEFINITIONS**

1. *Average monthly discharge limitation* means the highest allowable average of “daily discharges” over a calendar month, calculated as the sum of all “daily discharges” measured during a calendar month divided by the number of “daily discharges” measured during that month.
2. *Average weekly discharge limitation* means the highest allowable average of “daily discharges” over a calendar week, calculated as the sum of all “daily discharges” measured during a calendar week divided by the number of “daily discharges” measured during that week.
3. *24 hour Composite sample* means a combination of eight individual portions taken at equal time intervals over any 24-hour period that reasonably represents the calendar day. The volume of each individual portion shall be directly proportional to the discharge flow rate at the time of sampling.
4. *Daily discharge* means the “discharge of a pollutant” measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the “daily discharge” is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the “daily discharge” is calculated as the average measurement of the pollutant over the day.
5. *Discrete sample* means any individual sample collected in less than 15 minutes. The sampling period shall coincide with the period of maximum discharge flow.

6. *Maximum daily discharge limitation* means the highest allowable “daily discharge.”

**C. SLUDGE/BIOSOLIDS LIMITATIONS AND MONITORING REQUIREMENTS**

1. All biosolids <sup>13</sup> generated by the permittee shall be reused or disposed of in compliance with applicable portions of:
  - a. 40 CFR 503: For biosolids that are land applied, placed on a surface disposal site (dedicated land disposal site or monofill), or incinerated; 40 CFR 503, Subpart B (land application) applies to biosolids applied for the purpose of providing nutrients or conditioning the soil for crops or vegetation. 40 CFR 503 Subpart C (surface disposal) applies to biosolids placed on the land for the purpose of disposal;
  - b. 40 CFR 258: For biosolids disposed in municipal solid waste landfills;
  - c. 40 CFR 257: For all biosolids use and disposal practices not covered in 40 CFR 258 or 503.
2. The permittee is responsible for assuring that all biosolids produced at the sewage treatment plant are used or disposed of in accordance with 40 CFR 257, 258, and 503, whether the permittee reuses or disposes of the biosolids directly or transfers the biosolids to another entity for further treatment, reuse, or disposal. The permittee is responsible for informing subsequent preparers, applicators, and disposers of the requirements which these entities must meet under 40 CFR 257, 258, and 503.
3. No biosolids shall be allowed to enter wetlands or other waters of the United States.
4. Biosolids treatment, storage, reuse, or disposal shall not contaminate groundwater.
5. Biosolids treatment, storage, reuse, or disposal shall be performed in a manner as to minimize nuisances such as objectionable odors or flies.
6. The permittee shall assure that haulers transporting biosolids for off-site treatment, reuse, or disposal take all necessary measures to keep the biosolids contained.
7. If biosolids are stored for over two years from the time it was generated, the permittee must ensure compliance with all requirements for surface disposal in 40 CFR 503 Subpart C, or must submit a written request for longer temporary storage, including information required in 40 CFR 503.20(b), to USEPA Region 9.

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Biosolids means stabilized, non-hazardous sewage sludge.

8. Sludge containing PCBs equal to or greater than 50 mg/kg of total solids (100% dry weight basis) shall be disposed of in accordance with 40 CFR 761.
9. Any biosolids treatment, storage, or disposal site shall have adequate facilities which divert surface runoff from adjacent areas, protect site boundaries from erosion, and prevent any conditions that would cause drainage to escape from the site. Adequate protection is defined as protection from at least a 100-year storm and from the highest tidal stage that may occur.
10. Monitoring shall be conducted as follows:
  - a. Biosolids shall be tested when withdrawn, but no more than twice during the term of this permit (e.g., during years 2000 and 2003), for all pollutants listed under section 307(a) of the Act, and for sodium, chloride, and electrical conductivity. Test results shall be expressed in mg pollutant per kg biosolids on a 100% dry weight basis.
  - b. Biosolids shall be tested during years 2000 and 2003, or more frequently if necessary, to determine hazardousness using the Toxicity Characterization Leachate Procedure (see Method 1311 in *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*, EPA Publication SW-846). Contaminants and regulatory levels are found in Table 1 in 40 CFR 261.24(b).
  - c. Biosolids which are land applied or placed in a surface disposal site shall be tested for metals as required in 40 CFR 503.16 and 40 CFR 503.26 using *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods* (see 40 CFR 503.8(b)(4)), and for organic-N, ammonium-N, and nitrate-N using *Standard Methods for the Examination of Water and Wastewater* (1989). The appropriate monitoring frequency for these tests shall be determined by the biosolids volume land applied or placed in a surface disposal site. Test results shall be expressed in mg pollutant per kg biosolids on a 100% dry weight basis.

Biosolids Volume (dry metric tons/year)	Monitoring Frequency
0 - 290	Annually (Oct)
290 - 1500	Quarterly (Jan/Apr/Jul/Oct)
1500 - 15,000	Bi-Monthly (Jan/Mar/May/Jul/Sep/Nov)
> 15,000	Monthly

- d. For biosolids which are land applied, the permittee shall demonstrate that biosolids meet Class A or Class B pathogen requirements by one of the methods listed in 40 CFR 503.32. The permittee shall track and keep records of the operational parameters used to achieve the vector attraction reduction requirements in 40 CFR 503.33(b).
  - e. Biosolids that are placed on a surface disposal site shall be monitored as follows:
    - (1) Biosolids shall be tested for metals as required in 40 CFR 503.26 using *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods* (see 40 CFR 503.8(b)(4)), at the appropriate frequency required by Part C.10.c of this permit. Test results shall be expressed in mg pollutant per kg biosolids on a 100% dry weight basis.
    - (2) Prior to placement on a surface disposal site, the permittee shall demonstrate that biosolids meet Class B pathogen requirements, or shall ensure that the site is covered at the end of each operating day.
    - (3) The permittee shall track and keep records of the operational parameters used to achieve the vector attraction reduction requirements in 40 CFR 503.33(b).
    - (4) When biosolids are placed on a surface disposal site, a qualified groundwater scientist shall develop a groundwater monitoring program for the site, or shall certify that the placement of biosolids on the site will not contaminate an aquifer.
  - f. Biosolids disposed of in a municipal solid waste landfill unit shall be tested semi-annually using the Paint Filter Test (Method 9095 in *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*) to demonstrate compliance with 40 CFR 258.28 which prohibits disposal of materials with free liquids in a municipal solid waste landfill unit.
11. For biosolids which are land applied, the permittee, either directly or through contractual agreements with their biosolids management contractors, shall comply with the following 40 CFR 503 notification requirements:
- a. Prior to initiating any new treatment, reuse, or disposal practice, the permittee



shall submit a description of the practice to USEPA Region 9 and Guam Environmental Protection Agency (GEPA). This description shall include: results of initial monitoring/analyses for pollutants regulated under the new practice; names and addresses of contractors involved in the new practice; locations of treatment, reuse, or disposal sites; and proposed start dates. For land application of Class B biosolids, proposed application rates and crops to be grown shall be submitted. For surface disposal sites, a groundwater monitoring plan shall be submitted.

- b. For biosolids that are land applied, if the permittee's biosolids do not meet 40 CFR 503.13 Table 3 metals concentration limitations, then the permittee must require the land applier to notify USEPA Region 9 of any previous site applications of biosolids subject to cumulative loading limitations and the cumulative amounts of pollutants applied to date at the site, per 40 CFR 503.12(e) and (j).
  - c. For biosolids that are land applied, the permittee shall notify the applier in writing of the nitrogen content of the biosolids, and of all the applier(s) requirements in 40 CFR 503, including the requirement that the applier certify that management practices, site restrictions, and any applicable vector attraction reduction requirements in 40 CFR 503 Subpart B have been met. The permittee shall require the applier to certify at the end of 38 months following application of Class B biosolids that harvesting restrictions in effect have been met.
  - d. If bulk biosolids are shipped to another State/Tribal/Territory Lands, the permittee must send notice prior to the initial shipment of bulk biosolids to permitting authorities in the receiving State/Tribal/Territory Land (the USEPA Regional Office for that area and the State/Tribal/Territory authorities).
12. The permittee shall submit an annual biosolids report to the USEPA Region 9 Biosolids Coordinator by February 19th of each year for the period covering the previous calendar year. The report shall include:
- a. The amount of biosolids generated that year, in dry metric tons, and the amount accumulated from previous years.
  - b. Results of all monitoring required by Part C.10 of this permit.
  - c. Descriptions of pathogen requirements, vector attraction reduction requirements, site and harvesting restrictions, management practices, and certifications, as required in 40 CFR 503.17 and 40 CFR 503.27.
  - d. For surface disposal sites, results of any required groundwater monitoring or

certification by a groundwater scientist that the application/disposal will not contaminate an aquifer.

- e. Names and addresses of land applicers, surface disposal site operators, and landfill operators; and volumes applied or disposed (dry metric tons).
  - f. Names, mailing addresses, and street addresses of entities who received biosolids for further treatment, storage, disposal in a municipal solid waste landfill, or for other use or disposal methods not covered above, and volumes delivered to each.
13. The permittee shall require any applicers of Class B biosolids and any surface disposal site operators to submit an annual biosolids report to the USEPA Region 9 Biosolids Coordinator by February 19th of each year, for the period covering the previous calendar year. The report shall include: names and addresses of land applicers and surface disposal site operators, name, location (site addresses and latitude/longitude), and size (hectares) of site(s), volumes applied/disposed (dry metric tons) and for land application, biosolids loading rates (metric tons per hectare), nitrogen loading rates (kg/ha), dates of application, crops grown, dates of seeding and harvesting, and certifications that the requirements to obtain information in 40 CFR 503.12(e)(2), management practices in 40 CFR 503.14, and site restrictions in 40 CFR 503.32(b)(5) have been met.
14. The general requirements in 40 CFR 503.12 and the management practices in 40 CFR 503.14 do not apply when bulk biosolids are applied to land, if the biosolids meet the pollutant concentrations in 40 CFR 503.13(b)(3), the Class A pathogen requirements in 40 CFR 503.32(a), and one of the vector attraction reduction requirements in 40 CFR 503.33(b)(1) through (b)(8).

**D. CONSTRUCTED WETLANDS WASTEWATER TREATMENT SYSTEM OPERATIONS AND MAINTENANCE PLAN**

In consultation with GEPA and the Department of Agriculture, the permittee shall develop a Wetlands Wastewater Treatment System Operations and Maintenance (O&M) Plan for the Wetlands Treatment System. This plan shall include a description of all appropriate physical and biological measures necessary to efficiently manage the Wetlands Treatment System based on site monitoring results and design considerations, including, but not limited to, pretreatment (prior to wetland polishing), vegetation, soil <sup>14</sup>, and hydrological management as determined by the final system design. This plan shall be submitted to GEPA and USEPA Region 9 within 90 days of the effective date of this permit and shall be implemented by the permittee upon approval by GEPA and USEPA Region 9. The approved plan shall be updated annually to account for seasonal variations, wetland physiologic development, and other factors.

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<sup>14</sup>

Including a soils monitoring plan designed to assess toxic accumulations of metals, nutrients, and oil and grease in each cell of the constructed wetland wastewater treatment system .

**E. RECEIVING WATER MONITORING REQUIREMENTS**

1. The permittee shall conduct the following receiving water monitoring program.

a. Receiving Water Stations (see Attachment 3)

Station Name	Location
Toguan River 1 (TR1; control station)	200 feet upstream of Discharge Serial No. 001
Toguan River 2 (TR2)	100 feet downstream from Discharge Serial No. 001
Toguan Bay (TB)	Midway between shoreline and reef margin (reef flat) <sup>15</sup>

b. Receiving Water Monitoring

Receiving Water Characteristic	Units	Station	Monitoring Frequency	Sample Type
Flow	ft <sup>3</sup> /sec	TR1	Weekly	Discrete
Enterococci	CFU/100 mL	TR1, TR2	Bi-monthly	"
pH <sup>16</sup>	units	TR1, TR2	Weekly	"
Orthophosphate (PO <sub>4</sub> -P)	mg/L	TR1, TR2	Weekly	"
	mg/L	TB	Monthly	
Nitrate-Nitrogen (NO <sub>3</sub> -N)	mg/L	TR1, TR2	Weekly	"
	mg/L	TB	Monthly	
Dissolved Oxygen <sup>16</sup>	mg/L	TR1, TR2	Weekly	"
Turbidity	NTU	TR1, TR2	Weekly	Nephelometer
	NTU	TB	Monthly	

<sup>15</sup> Toguan Bay (TB) Station shall be representative of an area of Toguan Bay where complete mixing of fresh surface water from Toguan River and marine surface waters in Toguan Bay occurs. This station shall not be located in Toguan Bay Channel or Toguan estuary.

<sup>16</sup> pH, dissolved oxygen, and temperature shall be monitored concurrently. To account for diurnal fluctuations, monitoring shall be conducted within 3 hours after sunrise and within 3 hours before sunset.

Receiving Water Characteristic	Units	Station	Monitoring Frequency	Sample Type
Temperature <sup>16</sup>	°C	TR1, TR2	Weekly	Discrete

- c. The permittee shall verify all station locations (latitude and longitude) and submit this information in the first quarterly receiving water monitoring report.
  - d. Following bi-monthly (2x/month) receiving water monitoring required for enterococci during years 1 and 2 of this permit, the monitoring frequency for enterococci shall be reduced to monthly (1x/month).
2. The permittee shall submit quarterly receiving water monitoring reports to USEPA Region 9 and GEPA by 28th of April, July, October, and January for each period covering the previous three calendar months. These reports shall include:
  - a. A description of climatic and receiving water characteristics at the time of sampling (*e.g.*, weather observations, floating debris, discoloration, time of sampling, tide, *etc.*).
  - b. A description of the sample collection and preservation procedures used in the receiving water monitoring program.
  - c. A description of the specific method used for laboratory analysis.
  - d. An in-depth discussion of the results of ~~\*\*the~~ effluent and receiving water monitoring programs with regard to compliance with this permit. All tabulations and computations shall be explained.

## **F. GENERAL MONITORING AND REPORTING REQUIREMENTS**

1. All wastewater monitoring, and sludge/biosolids monitoring, receiving water monitoring, sample preservation, and analyses shall be performed as described in the most recent edition of 40 CFR 136, Appendix B, unless otherwise specified in this permit. For laboratory analyses, the permittee must utilize a standard calibration where the lowest standard point is equal to or less than the concentration of the minimum level <sup>17</sup> (ML).

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<sup>17</sup>

The Minimum Level (ML) is the concentration in a sample equivalent to the concentration of the lowest calibration standard analyzed in a specific analytical procedure, assuming that all the method-specific sample weights, volumes, and processing steps have been followed. Where a promulgated ML is not available, an interim ML is calculated by multiplying the MDL by a factor of 3.18 and then rounding this calculated value to the nearest multiple of  $(1, 2, \text{ or } 5) \times 10^n$ , where  $n$  is zero or an integer. Alternatively, interim MLs for metals may be rounded to the nearest whole number.

2. For *total chlorine residual*, *heavy metals*, and *pesticides* effluent analyses, the permittee shall utilize an approved test procedure with a Method Detection Limit <sup>18</sup> (MDL) that is lower than the fresh water acute, chronic, and human health criteria concentrations listed in Section II of *Revised Guam Water Quality Standards* (1992). If the MDL is higher than the criteria concentrations, then the permittee shall utilize the approved test procedure with the lowest MDL. Effluent analyses for heavy metals shall measure “total recoverable metal”, except as provided under 40 CFR 122.45(c)(3).
3. The results of all monitoring required by this permit shall be submitted in such a format as to allow direct comparison with the limitations and requirements of this permit.
4. The permittee shall submit influent and effluent monitoring results on monthly Discharge Monitoring Report (DMR) forms (EPA No. 3320-1) to USEPA Region 9 and GEPA by the 28th of April, July, October, and January for each period covering the previous three calendar months (*e.g.* January, February, and March monthly DMRs are due by April 28<sup>th</sup>). For *total chlorine residual*, *heavy metals*, and *pesticides* effluent analyses, analytical results for the reporting period shall be submitted on monthly DMR forms as follows:
  - a. Report for Maximum Daily Discharge Limitation (or if no limitation applies but samples are collected during the monthly reporting period):
    - (1) The *maximum value* of all analytical results, if the maximum value is greater than the ML; or
    - (2) *NODI (Q)* <sup>19</sup>, if the maximum value of all analytical results is greater than or equal to the laboratory’s MDL, but less than the ML; or
    - (3) *NODI (B)* <sup>19</sup>, if the maximum value of all analytical results is less than the laboratory’s MDL.
  - b. Report for Average Monthly Discharge Limitation (or if no limitation applies but samples are collected during the monthly reporting period):
    - (1) As directed for Maximum Daily Discharge Limitation, if only one sample is collected during the monthly reporting period (see Part F.4.a of this

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<sup>18</sup> The Method Detection Limit (MDL) is the minimum concentration of an analyte that can be detected with 99% confidence, as defined by a specific laboratory method in 40 CFR 136, Appendix B.

<sup>19</sup> *NODI* means no discharge/no data. *Q* means not quantifiable. *B* means below detection level.

permit); or

- (2) The *average value* of all analytical results where 0 (zero) is substituted for *NODI (B)* and the *laboratory's MDL* is substituted for *NODI (Q)*, if more than one sample is collected during the monthly reporting period.

c. Report as an attachment to the DMR form for each value reported as directed under Parts F.4.a and F.4.b of this permit:

- (1) The analytical result;
- (2) The number or title of the approved analytical method, preparation procedure utilized by the laboratory, and MDL or ML of the analytical method for the pollutant available under 40 CFR 136;
- (3) The laboratory's MDL for the analytical method computed in accordance with Appendix B of 40 CFR 136, the standard deviation (S) from the laboratory's MDL study, and the number of replicate analyses (*n*) used to compute the laboratory's MDL; and
- (4) The lowest calibration standard.

5. Duplicate signed copies of all reports required herein shall be submitted to the Regional Administrator and GEPA at the following addresses:

USEPA Region 9  
Pacific Insular Area Program (CMD-5)  
75 Hawthorne Street  
San Francisco, CA 94105-3901  
Telephone: 415/744-1484

Administrator  
Guam Environmental Protection Agency  
P. O. Box 22439-GMF  
Barrigada, GU 96921  
Telephone: 671/475-1658

*Attachment 1:*  
**LOCATION MAP**

*Attachment 2:*  
**PROCESS DIAGRAM**



*Attachment 3:*

RECEIVING WATER MONITORING STATIONS

*Attachment 4:*

**STANDARD NPDES PERMIT CONDITIONS**